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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,912

09/08/2005

David Andrew Horsnell

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EXAMINER

VO, ANH T N

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/520,912	<b>Applicant(s)</b> HORSNELL ET AL.	
	<b>Examiner</b> Anh T.N. Vo	<b>Art Unit</b> 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25, 28, 30-32, 34 and 37-45 is/are pending in the application.
- 4a) Of the above claim(s) 28, 30-32 and 37-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 10/492,258.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election /Restriction***

1. Applicant's election without traverse of group II, namely claims 1-25 and 45 in the reply filed on 14 July 2008 is acknowledged.

2. Claims 28, 30-32, 34 and 37-44 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b) as being drawn to non-elected invention. The election was made **without** traverse in the reply filed on 14 July 2008. The applicant was reminded that the claims 28, 30-32, 34 and 37-44 should be cancelled.

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a translation of the foreign application should be submitted under 37 CFR 1.55 in reply to this action.

### ***Specification***

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objection***

Claims 1, 10-12, 15-16, 19, 25 and 45 are objected to because of the following informalities:

\* In claim 1:

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- line 2: “which mechanism comprises a plunger member at least part of which” should be changed to --the valve mechanism comprising: a plunger, at least a part of the plunger-- for clearer language.

- line 7: “outlet” should be changed to --orifice--.

\* In claim 10:

- line 2: “nozzle” should be changed to --outlet-- for consistent language.

\* In claim 11:

- line 2: “nozzle” should be changed to --outlet-- for consistent language.

\* In claim 12:

- line 2: “which mechanism comprises a plunger member at least part of which” should be changed to --the valve mechanism comprising: a plunger, at least a part of the plunger-- for clearer language.

- line 7: “outlet” should be changed to --orifice--.

- line 16: “nozzle” should be changed to --outlet-- for consistent language

\* In claim 15:

- line 4: “a” should be changed to --the-- for avoiding lack of antecedent basic problem...

\* In claim 16:

- line 2: “nozzle” should be changed to --outlet-- for consistent language.

\* In claim 19:

- line 2: “nozzle” should be changed to --outlet-- for consistent language.

\* In claim 25:

- line 2: “nozzle” should be changed to --outlet-- for consistent language and for clearer language.

\* In claim 45:

- line 2, “such a” should be changed to --with the-- .

- line 3: “which mechanism comprises a plunger member at least part of which” should be changed to --the valve mechanism comprising: a plunger, at least a part of the plunger-- for clearer language.

- line 7: “outlet” should be changed to --orifice--.

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Appropriate correction is required.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-25 and 45 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 41-58, 69, 73, and 75 of Pub. No. US 2005/0231553; over claim 5 of Pub. No. US 2006/0238587; and over claim 4 of Pub. No. US 2006/0244783. Although the conflicting claims are not identical, they are not patentably distinct from each other because they claim a valve mechanism for controlling the flow of fluid comprising:

- a plunger member;
- an electric coil;

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- a magnetic field;
- an electric current;
- a valve head chamber;
- an outlet bore;
- a nozzle orifice;
- a fluid flow path;
- a unitary construction;
- an electromagnetically soft material;
- a saturation flux density greater than 1.4 Tesla and/or 1.5 Tesla; and/or from substantially 1.6 to substantially 2.2 Tesla;
- the plunger has a diameter of 3 mms or less and a length to diameter ratio of less than 15:1. and/or less than 2.5 mms and a length of from 10 to 20 mms ; and/or less than 1 mm and a length to diameter ratio of from 5:1 to 10:1 and/or a diameter of less than 2.5 mms and has a length to diameter ratio of from 3:1 to 10:1;
- the material from which the plunger is made has a coercivity of less than 100 amperes per meter and/or a coercivity of less than less than 50 amperes per meter and/or a coercivity of less than 25 ampere per meter;
- the material from which the plunger is made has a relative magnetic permeability in excess of 10,000 and/or of 50,000;
- the outlet bore leading from the valve head chamber to the nozzle orifice has a length to diameter ratio of less than 8:1. and/or a length to diameter ratio of from 1.5:1 to 5:1 and/or

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the outlet bore has a diameter of from 20 to 400 micrometers and a bore length to diameter ratio of from 1.5:1 to 8:1 and/or the outlet bore has a length to diameter ratio of from 1:1 to 5:1 and a nozzle orifice diameter of from 20 to 400 micrometers;

- a single winding;
- a nozzle plate;
- a plurality of valves;
- a tubular support;
- an enhanced seal;
- a metal container;
- a magnetic return path; and
- a magnetic screen.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-25 and 45 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of US Pat. 7,331,654. Although the conflicting claims are not identical, they are not patentably distinct from each other because they claim a valve mechanism for controlling the flow of fluid comprising:

- a plunger member;
- an electric coil;
- a magnetic field;
- an electric current;

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- a valve head chamber;
- an outlet bore;
- a nozzle orifice;
- a fluid flow path;
- a unitary construction;
- an electromagnetically soft material;
- a saturation flux density greater than 1.4 Tesla and/or 1.5 Tesla; and/or from substantially 1.6 to substantially 2.2 Tesla;
- the plunger has a diameter of 3 mms or less and a length to diameter ratio of less than 15:1. and/or less than 2.5 mms and a length of from 10 to 20 mms ; and/or less than 1 mm and a length to diameter ratio of from 5:1 to 10:1 and/or a diameter of less than 2.5 mms and has a length to diameter ratio of from 3:1 to 10:1;
- the material from which the plunger is made has a coercivity of less than 100 amperes per meter and/or a coercivity of less than less than 50 amperes per meter and/or a coercivity of less than 25 ampere per meter;
- the material from which the plunger is made has a relative magnetic permeability in excess of 10,000 and/or of 50,000;
- the outlet bore leading from the valve head chamber to the nozzle orifice has a length to diameter ratio of less than 8:1. and/or a length to diameter ratio of from 1.5:1 to 5:1 and/or the outlet bore has a diameter of from 20 to 400 micrometers and a bore length to diameter ratio of from 1.5:1 to 8:1 and/or the outlet bore has a length to diameter ratio of from 1:1 to 5:1 and a nozzle orifice diameter of from 20 to 400 micrometers;
- a single winding;



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- a nozzle plate;
- a plurality of valves;
- a tubular support;
- an enhanced seal;
- a metal container;
- a magnetic return path; and
- a magnetic screen.

***Citation of Pertinent Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These prior art references (US Pat. 3,980,270; US Pat. 4,310,023; US Pat. 5,064,166; US Pat. 6,422,533; US Pat. 6,471,896; US Pat. 7,198,334) cited in the PTO 892 form show a valve mechanism which is deemed to be relevant to the present invention. These references should be reviewed.

***Allowable Subject Matter***

Claims 1-11 would be allowable if provided a terminal disclaimer. These claims would be allowable because the prior art references of record fail to teach or suggest a valve mechanism for controlling the flow of fluid therethrough comprising a plunger member that is of a unitary construction and is made from an electromagnetically soft material having a saturation flux density greater than 1.4 Tesla and the plunger has a diameter of 3 mms or less and a length to diameter ratio of less than 15:1 in the combination as claimed.

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Claims 12-25 would be allowable if provided a terminal disclaimer. These claims would be allowable because the prior art references of record fail to teach or suggest a valve mechanism for controlling the flow of fluid therethrough comprising a plunger member that is of a unitary construction and is made from an electromagnetically soft material having a saturation flux density greater than 1.4 Tesla, a coercivity of less than 25 ampere per meter, and a relative magnetic permeability in excess of 10,000; the plunger has a diameter of less than 2.5 mms and has a length to diameter ratio of from 3:1 to 10:1; and the outlet bore leading from a valve head chamber to the nozzle orifice has a length to diameter ratio of less than 8:1, and the nozzle orifice has a diameter substantially the same as that of the bore in the combination as claimed.

Claim 45 would be allowable if provided a terminal disclaimer. This claim would be allowable because the prior art references of record fail to teach or suggest a valve mechanism for controlling the flow of fluid therethrough and a drop on demand ink jet printer incorporating such the valve mechanism comprising at least a major portion of a plunger member that is made from an electromagnetically soft material having a saturation flux density greater than 1.6 Tesla; and the plunger has a diameter of 3 mms or less and a length to diameter ratio of less than 15:1. in the combination as claimed.

### ***CONCLUSION***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo. whose telephone number is (571) 272-2262. The examiner can normally be reached on Monday to Friday from 9:00 A.M.to 5:30 P.M. The fax number of this Group 2861 is (703) 872-9306.

/Anh T.N. Vo/

Primary Examiner, Art Unit 2861

October 17, 2008

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